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# extension review

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## Natural Resources

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## Dependence on the Land

Some years ago, John, our youngest son, then a sixth grader, and I were returning home from a conservation school for teachers. John had attended every minute of the 2-day session which I had been helping teach.

John had quite a yen for notebooks. For this trip, he had a new short-hand notebook which my secretary had given him. During one of the long periods of silence in our ride, I decided to quiz him on what he might have learned.

Without a moment's hesitation he wrote, "Man is dependents on the land." Sparkling, and to the point! Although the spelling was wrong, his idea was right. I could only hope that the teachers had drawn the same conclusion.

Too often, many of us, particularly we who live in large cities, forget that man is dependent on the land and upon the many, many things that make up the land and come from the land.

In 1908, opening a Conference of Governors, President Theodore Roosevelt said "the prosperity of our people depends directly on the energy and intelligence with which our natural resources are used. It is equally clear that these resources are the final basis of national power and perpetuity."

In 1908, population of the world was less than 2 billion. The U.S. population then was about 92 million. Today, the world population is 4.5 billion and the U.S. population is almost 230 million. Predictions for the year 2000 place the world population at 6.1 million and the U.S. population at 259 million.

One acre of arable land supported one person in 1970. In 2000 the same acre will have to support four people. Cultivated land can be expected to increase only 4 percent because the best land, worldwide, is already under cultivation.

Our Nation has an ample land base for its current and projected population, *if the land is used wisely*. But the American people continue to be wasteful of our most basic resources and forego opportunities to increase production of natural resources, even though such actions could be accomplished in ways that are environmentally sound and economically efficient.

The latest long range projections of supply and demand of natural resources point consistently to some of the same basic conclusions:

- Production farm and forest land is being lost to urban and other non-agricultural uses at a rate of 3 million acres per year. One third of this loss is prime agricultural land.
- Loss of soil fertility, through accelerated erosion, is equivalent to the annual loss of another 3 million acres removed from production.
- Although air and water pollution is gradually yielding to controls, no lessening of protection can be tolerated.
- To maintain food and fiber production to meet expected domestic and international demands, the reserve farm land in the United States will have to be brought into production by the year 2000, *if it is still available*.
- Because of inadequate protection and management, the Nation's forests are producing less than 50 percent of the fiber of which the sites are biologically capable.
- The Nation's rangelands are producing less than half of the forage of which the sites are capable, with resulting losses of benefits of fish and wildlife, domestic livestock, soil stability, and water yields.
- Long-term investments in the production of natural resources are not being made at a level necessary to keep pace with expected demands for these resources.

● Opportunities exist to greatly increase production of renewable resources from farm, forest, and rangelands to meet nearly all reasonable projections of future needs.

The social and economic well-being of a Nation depends on possessing adequate supplies of natural resources—food, fiber, minerals, and energy at affordable prices. The environmental well-being of a Nation depends on managing the soil, water, land, and associated resources in ways that assure, in perpetuity, the availability of those resources to future generations.

Our basic needs for food, shelter and clothing are provided by soil and water. Ultimately, the existence of the human species depends upon how well natural resources are managed and protected.

My son and I rode the rest of the way in silence. But I did some deep thinking. The boy had a good understanding of the natural community relationship. He had begun to realize that he was only a small part of this wonderful world of nature. The idea of sharing it with others, with reason and understanding, was there. Nurtured, it could grow to help solve the frightening problems of our times—overpopulation, pollution, and the mad clamor to make money in spite of what happens to the environment.

I wonder? Will there ever be enough people that really understand man's total dependence on the land?—  
**Merrill (Pete) L. Petoskey Deputy Administrator Natural Resources**

(Editor's Note: The American Forestry Association, 1319 18th St. N.W., Washington, D.C. 20036 recently sponsored a National Conference on Renewable Resources. A publication, "Key to the Future—Renewable Natural Resources," highlights the conference. Part of the philosophy expressed above came from this report. If you are interested, limited numbers of copies can be obtained by writing the above address.) ■

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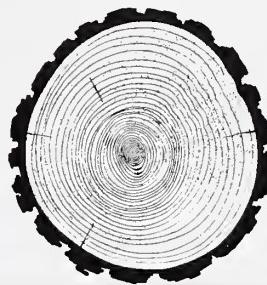
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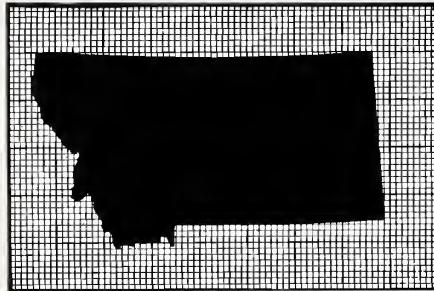
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## extension review

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Director of  
Science and Education

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Extension Service

The *Extension Review*, quarterly publication of the Extension Service is for Extension educators in county, state and USDA agencies. The Secretary of Agriculture has determined that the publication of this periodical is necessary in the transaction of the public business required by law of the Department. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through September 30, 1985. The Review is issued free by law to workers engaged in Extension activities. Others may obtain copies from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402, at \$2.25 per copy or by subscription at \$8.25 a year, domestic, and \$9.35 foreign. Send manuscript inquiries to: The Editor, Extension Service, Room 3137-S, USDA, Washington, D.C. 20250. Telephone: (202) 447-6133.

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# Small Ponds and Lakes: Big Resource in Georgia

George Lewis  
Fisheries Specialist  
University of Georgia Extension Service



Privately owned ponds and lakes are an important recreational and food resource in this country. A national survey of hunting and fishing conducted by the U.S. Department of Interior in 1977 estimated that 9.1 million anglers fished an average of 10 days each in farm ponds that year. That was about 19 percent of all fishing in 1977.

A Georgia survey estimated that 51 percent of the 571,285 licensed anglers in that state fished at least once in a privately owned pond. Of the 9.8 million fishing trips these anglers made that year, 4.1 million were to ponds and lakes smaller than 50 acres.

There are no accurate estimates on the importance of freshwater sport fish to the family diet, but these figures suggest that fish are an important part of what many rural and urban Georgians consume at the dinner table.

*Like a scene from a Norman Rockwell painting, two boys enjoy the tranquility of a Georgia pond and wait patiently for a catch using long switches as fishing poles.*

Observers predict that privately owned ponds and lakes will become an even more important resource for family recreation and food. There are several reasons for this. Large public lakes and reservoirs built in Georgia in the past 40 years have

helped meet the increasing demand for fishing, but most of the prime sites for reservoir construction have been used. Also, economic and environmental constraints make it doubtful that there will be a significant increase in public waters in the future.

By the year 2000, one survey estimates, there will be a 39 percent increase in the public demand for freshwater fishing. As energy becomes less available and more costly, how will this need be met? With local ponds and lakes. They not only will become more important for recreation and food—but for dollars as well.

Georgia already has nearly 60,000 privately owned farm ponds and lakes totaling 144,000 acres of impounded water. Unfortunately, most of these ponds and lakes are improperly managed—or not managed at all. The Georgia Extension Service is out to change that.

### **Small Pond Management**

First step—to determine why Georgia pond owners do not practice proper pond management. A lack of knowledge about the capability and potential of their ponds for fish production and recreation was one important reason.

One of the first priorities of the Georgia Extension Service fisheries program was to reach pond and lake owners with promotional and educational material that would make them want to manage their ponds properly and give them the necessary information with which to do it. We wanted to educate our clients on the recreation, food, and economic resources of a pond, and the management procedures they need to carry out to receive full benefit from these resources.

However, no two Georgia farm ponds are alike. Because of this diversity in ponds—and in management problems, available resources, and goals of the owners—educational program direction is best determined at the local level. For this reason, the primary focal point of our program is the county Extension agent.

Agents are encouraged to include sportfish pond management as a part of their overall county Extension program. A county program, of course, must be based on the wants and needs of landowners and on the available land and water resources in the county.

Agents are encouraged to seek information from the landowners and help from other agencies such as the Soil Conservation Service and the Georgia Department of Natural Resources in identifying problems and areas for future development.

To support these county programs, agent training in fisheries management is essential. In the past 3 years, four agent training programs have been presented in three of the five Georgia Extension Service districts. Comprehensive 2-day training programs are scheduled in all five districts next year.

In addition to training, an agent resource publication, *County Agent Fisheries Update*, is prepared and mailed to county offices as new subject matter becomes available. Each issue of *Update* covers a specific area of fisheries management.

To further encourage county fisheries programs, the publication *A Guide for County Program Planning in Aquaculture-Fisheries* Management was made available to all county offices. This publication is designed to help county staffs develop, organize, and improve county fisheries programs for landowners.

We also prepare a quarterly newsletter, *Fish Pond Notes*, and send it to county agents for distribution to their clients. More than 6,000 copies of this newsletter are being mailed by agents to interested landowners in their counties.

We also conducted 38 county short-courses and workshops at the request of county agents in the past 3 years. More than 1,700 landowners attended these meetings. Subjects covered varied from general pond management to specific subjects such as aquatic weed control.

Another aspect of the program involves work with individual county agents and landowners to help identify aquatic weeds, diagnose fish diseases and parasites, analyze water samples, and advise on water quality management and pollution abatement.

### **4-H'ers Participate**

The Georgia fisheries program also includes 4-H. A wildlife conference, marine science conference, and a natural resource adventure (raft trip down the Ocmulgee River) are held each year, and fisheries management information is presented during all three week-long events. In 1980, more than 9,000 Georgia 4-H'ers were enrolled in wildlife projects, and many of these dealt with fish and fisheries management.

Georgia's more than 60,000 farm ponds and lakes covering 144,000 acres are a big resource. Our goal is to get their owners to manage them with the same interest they manage their corn, cotton, soybeans, peanuts, swine, and beef and dairy cattle. ■

# Conservation Conference Develops Leadership

*Jimmy Tart  
Extension 4-H Youth Education  
North Carolina State University*



*Two participants at the 4-H conference take time from their busy schedule to tour Fontana Dam.*

"Use America's water and air, but please give them back clean and pure. We can't depend on someone else to get the job done."

That was the message from an Alabama teenager who spoke to some 250 4-H members from seven states at the 4-H Regional Resource Development Conference at Fontana Village, North Carolina, in June.

Her message would have pleased the conference organizers back in 1955. When the 4-H conference was conceived, it sought to teach delegates how to take an active role in conservation and wise use of the region's natural resources.

Since the first conference in June 1956, more than 5,000 teenagers,

ages 14 to 19, have attended. Two 4-H'ers from each of the 125 counties in the Tennessee Valley Watershed Area are invited each year. Returnee delegates, two per state, are also selected to attend.

The conference, which completed its 26th year in June, is held at Fontana Village, a resort located on the southern edge of the Great Smokies National Park. The site is surrounded by the natural beauty of mile-high mountains, hardwood forests, and clear, freshwater streams. Only a couple of miles from the Village is Fontana Dam, the highest dam in eastern America and the Tennessee Valley Authority's largest at 480 feet.

During the 4-day conference, the delegates meet and share ideas with youth from other states, and gain a better knowledge and appreciation of their natural and human resources.

They also learn how they can play greater roles in the conservation and wise use of resources, and explore career opportunities in resource conservation and management.

### Sponsors

The conference is sponsored each year by the Agricultural Extension Services in the seven Valley states, the Tennessee Valley Association (TVA) of Test-Demonstration Farm Families and the Tennessee Valley Authority. Participating states are Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia.

The association is composed of farm families who conduct educational demonstration programs with the Agricultural Extension Services and TVA on wise resource use. Members live in 125 Valley counties in the seven states and provide scholarship funds for delegates to attend the conference.

TVA, a government-owned corporation, was created by Congress in 1933 to help solve the Valley's economic problems.

The 4-H conference was conceived by the Association's Board of Directors. "It wanted to provide recognition for youngsters between state and national levels, tying everything together with a common denominator," explained Denver Robinson, the former North Carolina district Extension chairman.

### Extension's Role

The Extension Services play a major role in agricultural resource development in the Tennessee Valley.

Extension personnel recruit 4-H'ers and volunteer leaders to attend the conference, arrange transportation, and serve as workshop instructors. They also provide followup, visiting demonstrations, and opportunities for delegates to share what they have learned at the conference.

The Cooperative Extension Service in each state takes its turn on an annual rotational basis in serving as host for conference planning, leadership, and promotion.

During the week, delegates participate in workshops to learn the Tennessee Valley's resources: soils, forestry, atmosphere, water, minerals and energy, wildlife, and human. Extension specialists and university professors serve as instructors and place heavy emphasis on wise resource use.

### Leadership Development

The returnee delegates play important roles. A returnee delegate from the host state presides at general assemblies and serves as president of an executive council made up of previous delegates.

Returnees help plan the conferences, help get delegates to group activities, deliver talks on conference themes, and serve on

evaluation committees. They also attend a twice-daily leadership workshop.

Over the years, the returnee delegates have expressed their concerns to other 4-H'ers on numerous topics, including drugs, teenage marriages, divorce, apathy, over-population, environmental quality, conservation, strip mining, and pollution.

"It's a great forum for teaching awareness, conservation, and wise use of natural resources and developing leadership," says Robinson, who has attended 23 of the conferences.

"The delegates publish a daily newsletter and gather information for news releases to newspapers back home," he said. "I've seen young people who have attended the conference become outstanding leaders and I've hired many of them for county Extension agent positions. ■

# Wildfires Tame Prairie Grasses for Grazing

William S. Sullins  
Assistant Extension Editor  
Kansas State University

Trail bosses, herding steers into the tallgrass prairie of eastern Kansas more than a century ago, learned that their animals preferred grass burned by wildfires over unburned grass. The animals also gained weight better on burned grass.

Soon the trail bosses were demanding that landowners burn the rangeland before they would graze their steers at trail's end. Thus, quite by accident, began a concept that, with some exceptions, has been perpetuated and refined by each generation of ranchers since.

Why do steers gain weight better on burned pastures? One school of thought centers on nutrition. Burned rangeland grows faster and is more accessible to grazing. New growth on burned acres is more nutritious than the unburned mix of new and old growth.

Today, more than ever before, tallgrass prairie ranchers use fire as a management tool to control unwanted vegetation. For hardly any investment, they burn approximately 1.5 million acres of prairie each year and increase their beef production by about 12 percent. Ranchers are thus using a natural environmental phenomenon, fire, to their advantage and on their terms. In most instances, the best managed Flint Hills rangeland is that where fire is used in a precise and systematic manner.

## Promoting Safety

That has not always been the case. As settlements grew in the early days, some areas stopped burning because uncontrolled fires were destroying property and even taking lives. In those areas, woody plants such as redcedars, oaks, and dogwood began to invade and cause brush problems in the tallgrass prairie that persist even today.



Be it a wildfire or a "prescribed" or controlled burn, the danger to life and property still exists.

Safety comes first, says Paul Ohlenbusch, the Extension range and pasture management specialist who conducts a program in prescribed burning education at Kansas State University (KSU), Manhattan. Some landowners and managers, he says, sometimes think accidents happen only to others.

Ohlenbusch's Extension program stresses that burning rangeland involves more than striking a match and standing by as the blaze moves across a vast expanse of land.

*Above: This fire, near Manhattan, though small, top-killed all of the brush in the burn area. Left: Jim Hoobler, Kansas county agent and course participant, carries a drip torch as he helps conduct a practice burn.*

Regulations administered by the Kansas Department of Health and Environment must be followed, but Ohlenbusch says they are fair and reasonable.

He has tailored his educational program to three audiences—the public, public land managers and technical assistance personnel, and landowners and producers.

Ohlenbusch includes the public because "it has long been taught that fire is taboo." Wildfires are destructive, he stresses, but adds that prescribed burning can be as safe as any other management practice.

"If people know why ranchers burn, they aren't overly concerned when they see large clouds of smoke billowing up from the countryside in April," says Ohlenbusch. "They need to be assured that no one is harming the environment and that burning, in fact, improves the state's largest renewable natural resource—its rangeland."

To inform the public, he appears frequently on radio and TV programs and works with university writers on news releases. The state's newspaper and magazine editors have been particularly receptive to news items on range burning in spring. Public burning demonstrations are also held to promote the safe and effective use of fire.

Land managers are another important audience. They are usually public employees of the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and state fish and game commissions. They also include advisors to landowners, such as county Extension agents and Soil Conservation Service personnel, who want to understand better how to use fire.

For that group, Ohlenbusch and Jim Kunkel, Extension specialist and teacher of rural fire training at Kansas State, conduct the Rangeland Fire Behavior Shortcourse each spring. Part of the course's philosophy is "if you don't know how to put out a fire, don't start it."

To help the participants learn, Kunkel has adapted the state's basic course for volunteer firefighters to his sessions. Ohlenbusch discusses

equipment, safety, ignition techniques, and control methods adapted from various sources. Others with special talents are also asked to help teach. Weather permitting, short-course participants conduct outdoor burning demonstrations where, under supervision, they start and put out range fires.

Ohlenbusch also offers county burning schools for ranchers and landowners with help from local Extension agents. Materials used in these schools are adapted from the Rangeland Fire Behavior Shortcourse.

Ohlenbusch thinks the educational efforts add up to a well-informed public and a better-prepared clientele. Complaints are minimal each year, and this spring, which was unusually dry and windy in Kansas, ranchers put aside their burning activities. That was an indication to Ohlenbusch of their growing concern for safety.

In promoting effective use of burning, he can point to nearly 60 years of range burning research at Manhattan. For nearly 30 years K-State work has shown that more beef is obtained when burns are conducted just as grass greens up in April. Earlier burning, he stresses, results in no extra beef because pastures produce less forage and are slower to resume growth after a fire.

### Burning in the Future

What does the future hold for range burning?

Ohlenbusch has already seen the use of prescribed burning spreading into the mixed prairies of central Kansas. Its main use there is for brush control and grazing distribution with cow-calf operations.

"In the areas where fire is being introduced, we must be careful to ensure that the public will accept it," cautions Ohlenbusch. "Sloppy use of fire anywhere that escapes on a regular basis can destroy any potential for its use because of public pressure."

In addition, he says, prescribed burning is being used as a land management tool with increasing favor by the Army Corps of Engineers, Kansas Fish and Game Commission, and other agencies because of its effectiveness and low cost.

Ohlenbusch and Kunkel have trained agency personnel in Kansas, Oklahoma, Nebraska, Iowa, Missouri, Texas, Colorado, Arizona, North and South Dakota, and Minnesota. To date, 150 persons have been trained in five schools.

They are undecided on future schools. Competition for time during late March—the ideal time for conducting fire behavior training—is increasing. Priority will be given to county level schools and volunteer firefighter training. Several alternatives are being considered, including developing materials and training instructors within the agencies, conducting beginner and refresher training sessions within agencies, and moving to a classroom-only setting in winter. ■

# Alabama Tree Farmers— It's Christmas 365 Days A Year

Fred Holemo  
Extension Forester  
and  
Kenneth Copeland  
Information Specialist  
Auburn University Extension Service

In the last 5 years, 500 Alabama farmers planted 1.5 million Christmas trees. Although that may not sound like a lot to growers in the West or Midwest, it's a major accomplishment in Alabama—a state known for producing mostly cotton, soybeans, peanuts, and timber.

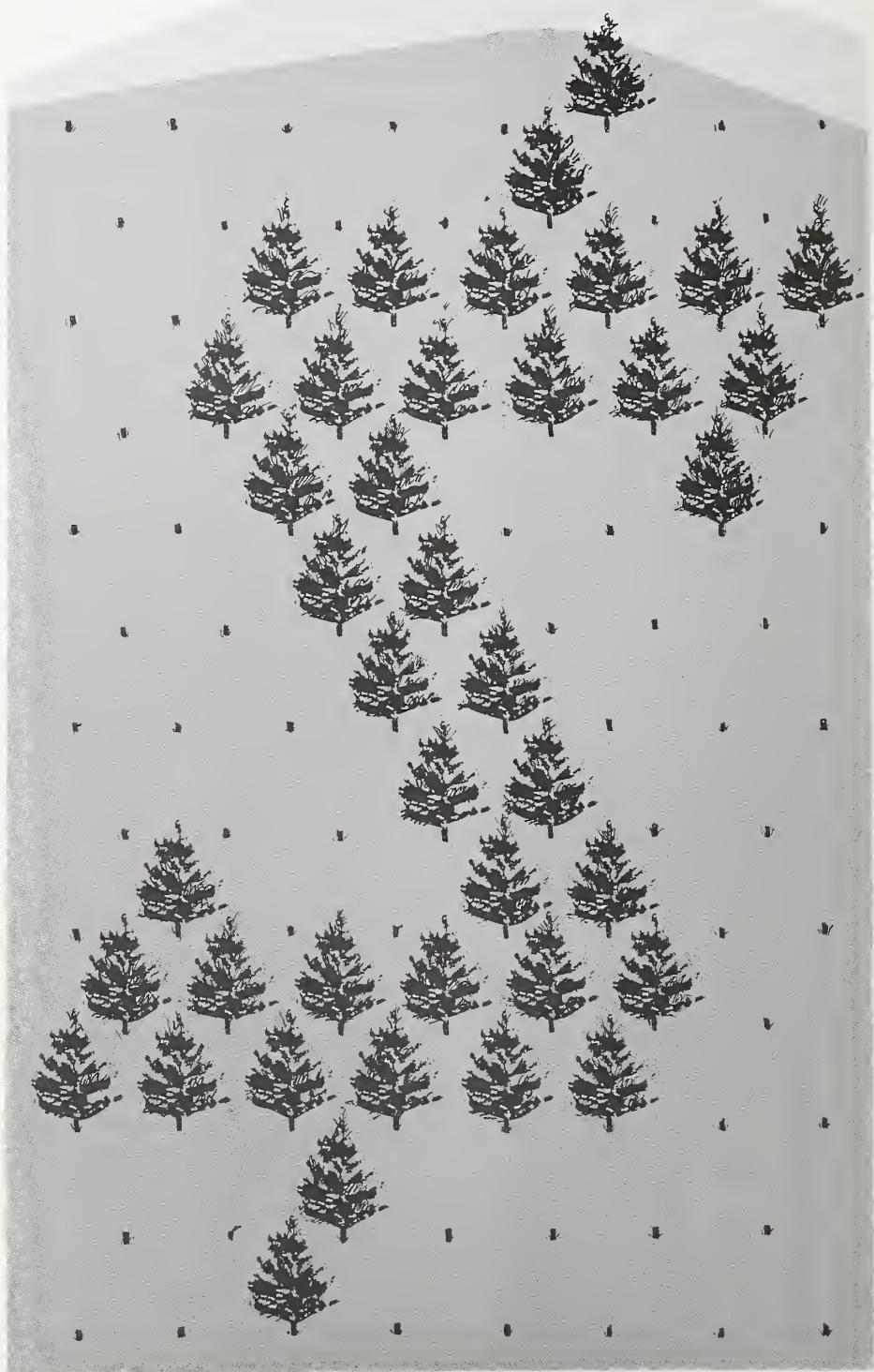
It also proves that Christmas trees will grow in Alabama and that there is a great future and potential for further development of this industry in the state.

What motivated Alabamians to plant trees? The answer is simple. It is partly the use of Extension techniques that have worked for almost 75 years—that is, to identify a potential area, design an educational program to develop it, to set up demonstrations, and then to use those demonstrations to encourage other growers.

## Why Christmas Trees?

Also the market is there. More than 300,000 trees are bought each year by consumers in Alabama. Most of these are grown in the West and Midwest. Supplying this market would add \$4 to \$5 million to Alabama farmers' income.

The climate and other advantages are also there. Because of a longer growing season Alabama farmers can grow a seven-foot tree—the size most people prefer—in a third less time than can farmers in the West and Midwest. Alabama growers can also provide fresher trees to other Alabamians. Local customers can decorate the tree the same day it's cut. In many cases, trees produced





out-of-state are cut 6 to 8 weeks before Christmas.

A 1975 survey revealed that Alabama had 12 growers with less than 100 acres of trees. Fewer than 10,000 trees were being produced. But those few trees yielded some valuable information—that Christmas trees can be grown successfully in Alabama.

### **Education Spreads the Word**

One of the first steps in the Extension education program was to spread the word about the potential for Christmas tree production. Although it offers farmers another source of income, we had to convince growers that it's not a get-rich-quick scheme. Much labor is required.

First we prepared a bulletin describing all phases of Christmas tree production. Later, we published detailed information on tree planting, shearing, controlling unwanted vegetation, and insect and disease control. Today we have a very comprehensive package for both new and established growers. Almost 400 copies of the packet were distributed during the first quarter of 1981.

Another early task was to spread the word that Christmas trees could be grown in Alabama as a profitable land-use alternative. This was accomplished through 24 county meetings, 5 area events, and 4 state meetings. Numerous newspaper and magazine articles and TV news spots also featured Christmas tree production in Alabama. A slide-tape program on Christmas tree production was made and has been used widely throughout the state.

The Christmas tree program has received good support from the Agricultural Experiment Station at Auburn University as well as A & M University at Huntsville. At Auburn,

the Experiment Station's agricultural economics group conducted a study describing the state's Christmas tree market. The soil testing lab developed a set of recommendations for Christmas tree production, and the zoology and entomology department is researching how to control the Nantucket pine tip moth, a major Christmas tree pest. Extension's Information office has provided support for these efforts.

In conducting these educational programs, we've worked closely with the growers and used their farms as "show and tell" places to promote the best techniques for growing Christmas trees.

A state association of Christmas tree growers' was formed in May 1978, and has 100 members.

### **Wise Operation**

One operation used in Extension's demonstration program is owned by Jack and Larry Wise of Coffee County. "Growing Christmas trees is like raising cattle," Larry says. "You have to see after them constantly."

This has been one of the points we've stressed in this educational effort. Many people thought that you could plant Christmas trees and forget about them until harvest.

"If you're not interested in lots of hard work and if you don't have the time to spend with them, leave Christmas tree growing to someone else," Larry emphasizes. "Many people abandon the project because they can't wait four to five years for their first payday."

The Wises planted 1,600 trees in 1978, 2,600 in 1979, and an additional 500 in 1980. They will plant about

1,500 this year. Some trees are planted in 6-by-6 foot rows, giving 1,200 trees per acre. Some are planted in 8-by-8 foot rows, for a total of 680 trees per acre.

The Wises grow 7-foot trees in 3 to 4 years and stagger their planting to have trees ready for sale each year, says Coffee County Agent Coordinator Tom Casaday.

Jack Wise reports that they've found the 7-foot tree to be the most popular size. He said, "We sell our trees for \$2.75 a foot—\$19.25 for the 7-foot tree. We figure that it costs us about \$4 to grow a tree, which gives us a \$15.25 return for our labor, land, machinery and managerial abilities.

"We figure we have the edge in the Christmas tree market," he said. "We can grow a tree in a third less time than people in the West and Midwest. We can provide our customers with fresher trees and we don't have all those shipping costs.

Shearing is very critical and must be done at the right time. A good rule of thumb is to shear the tree when you get a foot of new growth. Usually this is twice a year—in April and in August.

Marketing time is a big day for the Wises. To sell trees last year, the Wises let customers come to the farm and pick and cut their own trees.

"Advertising pays," said Jack. "We used television, radio and newspapers. We've also found that having a picture of a nice tree in the ad sells our business.

Until now Alabama producers have been thinking mainly about filling the tree needs of Alabama consumers. But, in the future, Alabamians like the Wises may be exporting trees as they do cotton, soybeans, peanuts and timber products. ■



# Burning Wood— Connecticut Style

Arland Meade  
Extension Editor  
University of Connecticut

As an energy-conscious America searches for alternate fuel sources, the wood burning stove has become a permanent fixture in thousands of homes in the same way its ancestor, the pot-bellied stove, did years ago.

Like any tool, the use of a wood stove requires a number of considerations, the most important of which is safety.

In Connecticut, for example, the Cooperative Extension Service stepped to the front with educational activities to show would-be wood burners how to use the stoves efficiently and prevent injury, loss of property, and perhaps save lives.

At the start of the program, in the mid-1970's, there were no funds or special staff for the program. However, two agricultural engineers on the Extension staff developed and conducted the program as their time allowed. Their audience—both rural and urban homeowners, are within Connecticut and across state lines.

Edward Palmer and John Bartok attacked the problem with enthusiasm. "Selling" their service was no problem, as various officials and the public heard that Cooperative Extension could help. Interest was keen in utilizing readily available Connecticut woodlots to replace some of the imported oil. The Extension engineers used several media to announce meetings and services available.

## Interest Grows

The first forum for teaching was the public meeting. Palmer and Bartok assembled about 150 slides—mostly photographed by Bartok. The team also used stoves, wood, tools, and guests with special expertise in forest management, fire prevention and insurance.

The slide set on wood-burning principles, methods, and safety has become so popular that during the last few years at least 40 sets have been duplicated and sold to other Extension services and users across the Nation.

A 32-page book called *Burning Wood*, published by the Northeast Regional Agricultural Engineering Service (Extension), closely follows the story as presented by these slides. As of July 1981, 200,000 copies had been sold.

Presentations using the slides last two to three hours. There is no recorded tape; the lecturer narrates the slides as an illustrated outline and presents the material to suit the particular audience.

In 1975 Bartok and Palmer conducted seven meetings where attendance ranged from 85 to 250 per session. The next year they conducted ten sessions for 935 participants, and 20 meetings in 1977 attracted 1,530 participants.

Public meetings began in 1975. They were so popular that meeting space became a problem. Among the participants were fire fighters, fire marshalls, building inspectors, and other public employees.

Other states sought instruction from Bartok and Palmer. They collaborated with Rhode Island and New Hampshire in producing a video tape. It was aired on public television and used widely by groups. Out-of-state training sessions were conducted by these agricultural engineers—largely by Bartok, as Palmer retired late in 1978.

In 1978 the U.S. Department of Energy gave Connecticut a grant to conduct a pilot project for energy conservation. The Extension Service received more than \$300,000 through the State energy division to establish a joint program.

Extension was then able to employ a staff with a part-time engineer, a coordinator, and about nine field workers called "energy associates." They worked from county Extension offices but soon acquired their own identity as Energy Extension Service. These agents included wood burning among their many energy-saving and alternative energy programs. Also, they published a newsletter with 20,000 circulation. Soon citizens in Connecticut began to conduct their own meetings using the prepared slide set.

## Wide Spectrum of Participants

Joint meeting sponsorship with civic and regulatory agencies has included: Fairfield County fire marshalls, the American Legion, the League of Women Voters, the Civic Center Energy Fair, the Waterbury Regional Planning Agency, the State Building Inspectors Association, Northeast utilities, Energy Extension Service, and the Woodbury Public Library.

Cooperation with many corporations, dealers, and civic agencies has been important. Without this, the tiny Connecticut staff could never have reached so many clients during the past 5 years. Not only are meeting places made available at no cost, but materials are provided for demonstrations either at meetings or advertised on television shows. The varied aspects of teaching people how to obtain and use wood for fuel has brought Cooperative Extension favorably to the attention of thousands of people.

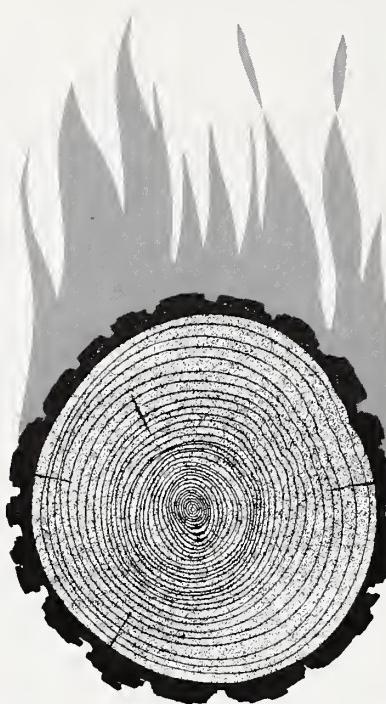
The energy agents and state specialists keep in touch with manufacturers and sellers of stoves and furnaces. These merchants want a good safety record for their wares, not only for their own sake but to reduce the likelihood of more restrictive government regulations. In any case, they feel that prevention of trouble through education is better than trying to legislate safety. Regulatory officials are highly involved with the Extension workshops and lectures, both as learners and contributors.

What portion of the energy agent's time is devoted to teaching the use of wood for fuel? A small part, and no precise statistics are available. Connecticut does not have a specialist or field worker assigned full time to wood as a fuel. There are now six energy field agents at five locations, and an energy leader at Storrs. The program's effectiveness has been a product of alert young agents, substantial on-the-job training, individual initiative, and cooperation with many agencies and organizations.

Paul Signore, an urban agent, categorizes clientele mostly into two types: those who cannot or will not do anything for themselves other than acquire facts, and the do-it-yourself ones who want to accomplish with their own hands. Both types are accommodated in meetings or other contacts.

### Valuable Exchange of Ideas

Connie Lawler, an agent in rural Litchfield County, surveyed 500 clients in 1980 and found that 35 percent used woodstoves—an increase of 13 percent over the previous year. Another agent found that rural people more often have unsafe installations than do urban people. Extension education is clearly needed they say.



Energy agents cross county lines at will, as they think statewide and help each other. Agents ask each other to present a program or one aspect of a program. All work with the state program leader at Storrs, Bruce Wilbur. Each agent has much latitude to develop programs according to local needs and her or his aptitudes or interests.

Bill Duesing and Paul Signore refer to their meetings as seminars—they find that others like to contribute information and experiences. They teach techniques of maintenance, about equipment, and the many do's and don'ts. When they hold seminars in places of business, the dealers know in advance that they will talk about their equipment from an unbiased viewpoint, and may point out deficiencies as well as advantages.

Most requests for wood-burning educational sessions are routed to the energy associates. They note that emphasis is changing from basic woodstoves to either more elegant and expensive stoves or to wood-burning furnaces for central heating.

This trend is supported by the sale of 50,000 copies of *Wood Furnaces and Boilers*, printed by the Northeast Regional Agricultural Engineering Service.

Interest in burning wood and Extension's training and teaching sessions has attracted space and time in the media. When the city of Groton announced a meeting for fire fighters for a number of towns, the media promoted and covered it as important news. Although CES announces meetings, the press comes to the agents more than in other fields, reports energy agent Duncan Bailey.

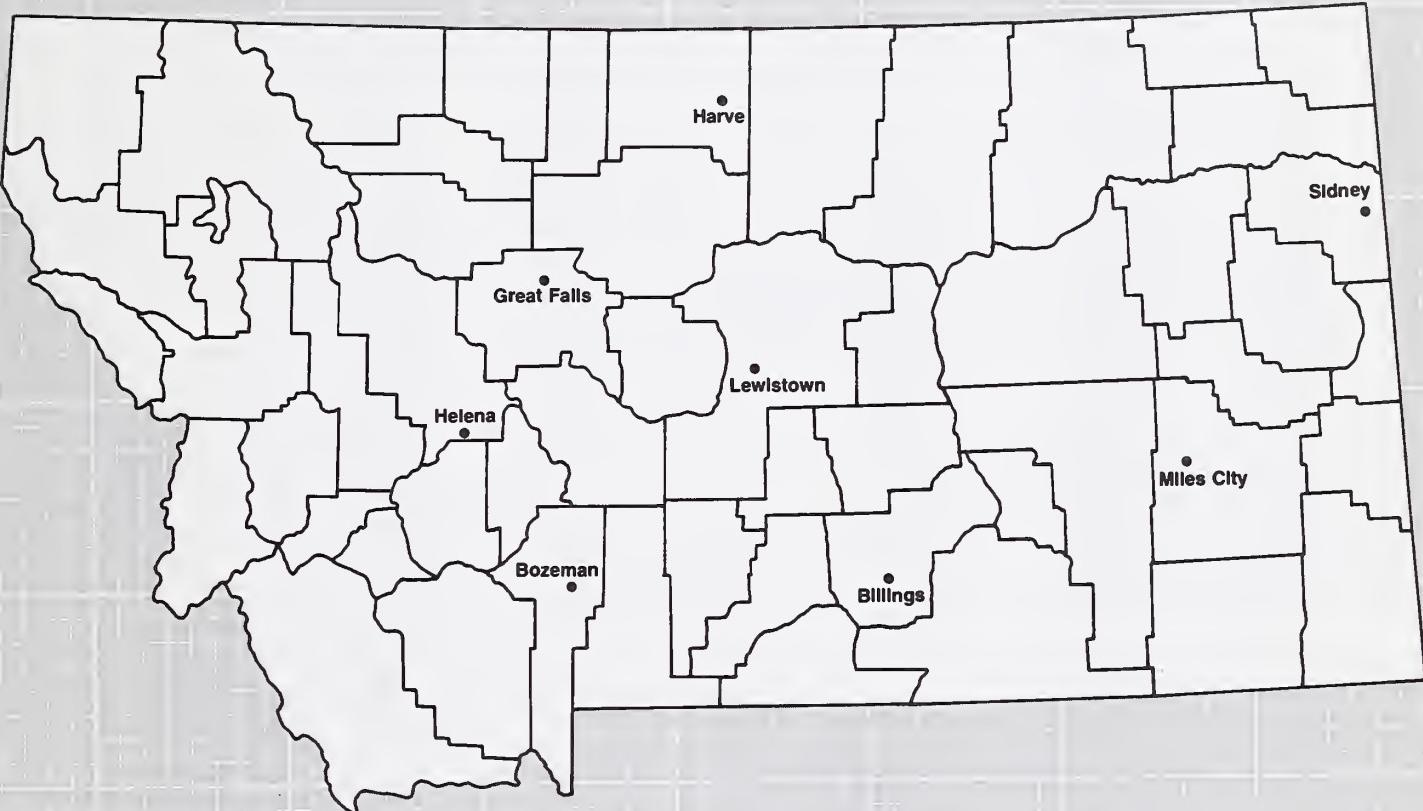
Television has been helpful. Programs about wood burning have been on cable and on three commercial stations, usually with John Bartok as chief advisor. A cable station carried a complete do-it-yourself segment to take people through every step of wood stove installation for safety. Connecticut's largest commercial TV station carried a presentation as a serialized segment.

Some of the informational literature from the program is duplicated by others; and Energy Outreach provides large quantities of printed information to the public. A stove installation checklist, for example, is routinely distributed by fire departments to all who ask about permits for installing stoves. Fire departments and fire marshalls have come to rely on Cooperative Extension for unbiased, practical information.

The information-spreading circles on wood-burning programs continue to expand. ■

# A Quicker Way to Plan the Land

Greg Northcutt  
Experiment Station Editor  
Montana State University



Imagine dividing the entire state of Montana into 18,000 adjoining blocks of land, each covering eight square miles. Describe the land resources of each block in terms of 20 different characteristics, such as soil types and vegetation, dates of first and last freezes, growing season precipitation, and annual water use. Now you have some idea of the vast amount of information compiled on Montana's land resources.

It's the kind of information needed to manage land for its most productive use—whether it's growing crops, constructing highways, or building housing developments, and it's all been filed neatly away in computers. The trick is to pull out just the information needed to solve quickly a particular land management problem.

Jerry Nielsen, a soils scientist with the Montana Agricultural Experiment Station, and Bill Schafer, a soils specialist with the Montana Cooperative Extension Service, are teaming up to tackle that task.

## Delivering the Data

"Soil inventory information like that provided by soil surveys, is the single most useful source to properly manage land," says Nielsen. "But it isn't enough. The job also involves other resources—geology, climate, vegetation, and wildlife. All interact and must be identified and evaluated. The computer can do this, by comparing thousands of bits of information gathered from all over the state. And it can do the job in a fraction of the time we can by hand using tables, calculators, and map overlays."

Nielsen says that many profitable land use alternatives are slipping by. The information has been collected, says Nielsen, but it is just not in a readily available form.

He says the increasing competition among states for water is one example.

"Some areas of the country, claiming they need more water, boast of how much wheat they can produce per acre of land," he says. "But, in terms of the amount of water required per bushel, few states can match Montana's efficiency. Once Montana farmers get a crop up, they can produce seven bushels of wheat per

acre-inch of water. By contrast, a differing climate limits Kansas wheat farmers to producing only about half as much with the same amount of water. Those in New Mexico, Arizona, and California produce even less wheat per unit of water.

"Our job is to deliver information such as this to those in Montana who manage the land so they can use it to the most productive advantage," Nielsen adds.

### Working with AGNET

Nielsen would like to work with various federal and state agencies to develop this computerized delivery of land resource information. One idea is to utilize the AGNET computer programs which are available through county Extension agents.

"Let's say a farmer is considering planting safflower for the first time," Nielsen explains. "He could use an AGNET program, such as FLEX-CROP, to compare the soil and climate of his area with that needed to successfully grow safflower. In a matter of minutes, he could determine if safflower offered a reasonable profit potential."

"That's where soils specialist Schafer comes in. He's designing computer programs to provide such land management decisionmaking information in a fast, easy-to-use manner.

"We want to develop programs that will enable farmers, civil engineers, urban planners, and others who need the information to get it through AGNET," says Schafer. "Once the programming is perfected, there are many practical applications."

For example, Schafer notes that researchers have already used the computer to map areas of the state where, because of certain land resources characteristics, summer fallow doesn't pay.

In addition, the computer was used to select the site of the Western Triangle Agricultural Research Center near Conrad. Analysis revealed this particular location to represent a large part of this area of the state in terms of soil and climate.

### Other Possibilities

"We've also prepared computer maps depicting those areas in the state that have growing conditions similar to the Experiment Station's farm near Bozeman as well as the seven Research Centers throughout the state," Schafer adds. "This can help farmers more accurately apply research results to their own situations. And, we could use the computer to generate similar maps for the state showing where certain crops are best suited."

### A Quicker Way to Plan the Land

Other decisionmaking possibilities involving such land resource information include recropping, fertilizing, and weed control management.

Schafer notes one other. "Because of increased housing development, county planners in the Flathead River Basin are concerned with on-site waste disposal areas," he says. "The computer could aid in designing and locating septic tanks in this area by analyzing information on soil permeability along with other factors affecting soil drainage and water quality."

Nevertheless, despite the potential, the proof of this approach to delivering land resource information will come with the actual computer programs. And those, says Schafer, should be completed this year. (Editors Note: Reprinted from the Winter 1980 issue of *Focus on Montana Agriculture*.)

# Shelterbelts— Wooded Islands of Wildlife

Birds and other wildlife are important symbols of relief to farm families who spend week after week looking at the silent, barren landscape of a Minnesota winter.

"That's one reason it's important to manage wildlife populations properly in rural areas," says Richard Yahner, a wildlife scientist who studies avian and mammalian

*Right: This farmstead, unprotected from the elements, leaves a barren winter environment. A shelterbelt, below, protects the farmstead from wind, dust, snow, and cold, and may reduce energy bills by as much as 30 percent if properly designed and maintained. The trees and other plants also attract beneficial birds and small animals, creating a more pleasant winter landscape.*



populations in shelterbelts, which are wooded areas planted around a farm to protect buildings and livestock from the weather.

"Wildlife management has to be done within the economic constraints of farmers. A farmer can't just turn productive land over to wildlife," says Harold Scholten, who does forest research and Extension work with shelterbelts and field windbreaks throughout Minnesota.

Yahner agrees. "Basically, we're talking about a whole new environment on today's farms," he says. "Wildlife habitats have been fragmented in recent years with intensive agriculture, and windbreaks and shelterbelts have become wooded 'islands' surrounded by extensive fields of crops, pastures, and natural prairies. These islands provide food and shelter for many birds and mammal species. My research is attempting to gather base-line information on the ecology and management of wildlife communities associated with these man-made woodlands."

### Saving Wildlife and Energy

"It's true about the new environment," Scholten says. "Most of the windbreaks and some of the shelterbelts were first planted immediately after the Dust Bowl of 1934 to prevent soil loss."

Researchers now face the challenge of how to best design and manage these established windbreaks and shelterbelts by thinning, pruning, and replacement.

Ideally, a properly planted and maintained shelterbelt can last 70 years or more. It can protect livestock and farm buildings from wind, dust, snow, and cold, and reduce energy bills by as much as 30 percent. It can also provide adequate cover and food for a delicately balanced wildlife community. However, a poor shelterbelt can create many headaches for a landowner. Research is under way to identify and test the best species and strains of trees and shrubs for use in shelterbelts and windbreaks.

The Agricultural Experiment Station, the Soil Conservation Service (SCS), the Plant Material Center in Bismarck, North Dakota, the Agricultural Extension Service, and the College of Forestry are working together on this project.

"We're doing this through known seed sources so that results can be identified and duplicated," says Scholten. "We're looking for good replacement trees, and we have one that shows a lot of promise—the Siberian larch which is hardy, disease resistant, and grows well in alkaline soils. It seems to be developing as a good alternative to hardwoods for field windbreaks and for use in farmstead shelterbelts."

### New Growing Methods

The process of testing and recommending new varieties will take at least 10 years, researchers say. At the same time they are looking at more efficient methods of handling nursery stock. Often, hardwood trees were preferred because they grew faster and could be planted as year-old, bareroot seedlings. Conifers had to be transplanted and they were 3 to 4 years old before they could be planted permanently. Even then, it often took conifers a number of years to show substantial growth.

Now, research is finding another way. Conifers are grown in containers in greenhouses. Researchers plant seeds in January and in August. They set the seedlings outside to harden off. The seedlings go through several light frosts in the fall, then they are covered with wood shavings during the winter. In the spring, they are planted in the field.

In a SCS belt of two rows of ponderosa pine at one experimental plot, one row was transplants and the other row was container seedlings grown in 6-inch pots. After 7 years, the transplants averaged three feet tall and had many blanks or missing trees. The container-grown pines had a survival rate of more than 90 percent, and were about 10 feet tall.

### New Design Needed

One of the greatest needs says, Scholten, is a better shelterbelt design.

The standard eight-row shelterbelt has a row of dense shrubs on the side of the prevailing winds, followed by a row of tall shrubs or medium-size trees. Rows 3 and 4 are usually tall deciduous trees, and rows 5 and 6 are tall conifers. Rows 7 and 8, those closest to the farmstead, are usually shorter, denser conifers.

"I don't know what the perfect design would be, I just know we haven't found it yet," Scholten says. "What's good in one situation is not always best in another."

For Yahner, one essential design characteristic would be for a shelterbelt to have a complex vegetative structure where birds can feed and

roost. It would have a herbaceous lower layer, middle or understory growth, and a canopy overstory. Tall deciduous trees, such as green ash and poplars, are important to warbling vireos, northern orioles, and other songbirds. Conifers, particularly spruce, are ideal nesting sites for robins and doves. Shrubs like honeysuckle and viburnum afford cover and food for pheasants, dark-eyed juncos, and gray catbirds, to name a few.

### Proper Spacing Essential

Space is the design element that most concerns the two researchers. "Within rows of trees, there is always a tendency to plant too close," Scholten says. The sooner the lower branches of adjacent trees begin to touch, the earlier the farmer gets protection from wind and snow. However, it is not long before touching becomes crowding. Crowding causes the lower branches to die from shading, which eventually self-prunes the tree, causing the shelterbelt to lose much of its value.

Scholten recommends that trees in a well-established shelterbelt be 16 to 20 feet apart and staggered from row to row so gaps fill in as the trees grow.

In older shelterbelts, where crowding has occurred, it's often necessary to remove trees within rows or entire rows of trees to achieve the desired spacing. However, farmers often leave a few dead trees as foraging and nesting sites for insect-eating birds such as woodpeckers and chickadees.

Forest research has shown that, if space is limited, it is better to reduce the number of rows than to crowd trees. Also, it appears that the extent of the perimeter is more important than the width of the belt for attracting wildlife. If two shelterbelts are of equal area, a long narrow one appears to be more beneficial to wildlife than a shorter, wider one.

Scholten also advises farmers to "allow an interval between rows of at least 4 or 5 feet greater than the width of the cultivating equipment." Since shelterbelts require careful cultivation to get established, allowing space for equipment is essential."

### A Delicate Balance

Animals can present problems in establishing shelterbelts. Unless fenced out, livestock can defoliate and break off young trees. Rodents sometimes gnaw off the roots of conifers. Jack rabbits are troublesome in southwestern and western Minnesota, where they have been known to snip off or debark young trees.

"But don't try to eradicate the small mammals in a shelterbelt," Yahner cautions. "It's easy to adversely affect the avian population too. The two are held in a delicate balance."

He explains that eliminating small mammals such as voles from a shelterbelt may remove a major food source for fox and weasel. These predators might then feed on birds and their young. One aspect of Yahner's research is to examine the nesting success of birds in relation to predator and small mammal density.

Yahner says that small mammals found in shelterbelts, such as white-footed mice, meadow voles, and shrews, are adapted to natural habitats and seldom venture into farm buildings and cause damage.

The house mouse, on the other hand, inhabits farm buildings and consumes stored grain regardless of the presence of a shelterbelt.

Scholten says that when he recommends mulching young shelterbelt plantings with ground corncobs, farmers are often hesitant for fear of attracting mice. "But I see no evidence that cobs attract mice if weeds and grass are controlled and the belt is properly cultivated," he adds.

Yahner and Scholten recommend frequent cultivation between rows of a shelterbelt until the trees and shrubs are well established.

They say that family vegetable gardens and row crops such as sweet corn can be grown between the rows of trees, and suggest leaving some cornstalks and excess corn standing during the winter for wildlife food and cover.

Although he says that careful cultivation is a must in the beginning, Yahner adds that farmers should not continue to mow beneficial wildlife cover once the planting is established. He also suggests that corn, sunflowers, or sorghum be grown adjacent to mature shelterbelts and that several rows be unharvested. "It's one of the ways farmers can return some of the food and shelter that have been taken from wildlife," he says.

During meetings with constituent groups around the state, University officials learned that farm families wanted help in managing wooded areas. Their request was taken forward and funded by the legislature. Today Yahner's research is beginning to amass useful knowledge that can benefit wildlife on Minnesota's farms. (Editor's Note: Reprinted from the Winter 1981 issue of *Minnesota Science*).■

# Natural Resources 4-H— New York's Experience

The 1970's was a decade of environmental awakening for Americans. And nowhere is this more evident than in 4-H. Over the last 10 years, we've seen the awakening of a giant—a giant reservoir of enthusiastic interest in Natural Resources 4-H programs among both youth members and adult volunteer leaders.

**4-H In Century III** recognizes the potential of such programs, recommending that "the 4-H environmental improvement program must have high priority and resource allocation must be commensurate with the needs." This recommendation should lead to the attainment of many Century III objectives for 4-H nationwide, including a 100-percent increase in volunteer leaders. Our optimism stems from our experience with the Natural Resources Youth Program in New York.

## New York's Program

During the 1970's, the Natural Resources Youth Program in New York underwent many marked changes. It was transformed from a fragmented and poorly serviced programs into a series of program areas having defined objectives. A philosophy was developed early on.

Much of our energy was first spent producing essential materials in environmental education, fisheries, wildlife, forestry, and recreation. We attempted to make these new materials both scientifically sound and challenging to youth.

A major thrust of the new program was aimed toward two low participation audiences for 4-H in New York—teenagers and males, both leaders and youth. We used the "introduction" of our new materials to initiate contacts with county staff and volunteer leaders.



As the basic elements of the program were put into place, our attention shifted to program implementation through leader training, teen leadership development, establishment of county program development committees, and an overall 4-H agent advisory committee. The results were rewarding. Youth participation increased dramatically during the decade, although overall 4-H enrollment in New York showed a slight decline over the same period. However, enrollment for our program grew from about 10,000 youth annually in the early 1970's to over 60,000 youth by the end of the decade.

## 4-H Agent Survey

This skyrocketing youth involvement in 4-H Natural Resources programs caused 4-H agents to seek additional programming assistance and educational materials. As the long-

*Birdwatching, or "birding" as many aficionados call it, is as relaxing and interesting for kids as it is for adults.*

term programming and budgetary implications of meeting this burgeoning demand became clear, our 4-H agent advisory committee requested guidance through a formal polling of their peers. Consequently, we developed a mail questionnaire to obtain 4-H agents' evaluation of current programs and their preferences for future programming in Natural Resources. The survey was conducted among all 63 county 4-H agriculture agents statewide and was completed in early 1980; 81 percent responded.

What's in store for the Natural Resources 4-H program in the 1980's? Ninety percent of the agents foresee youth participation increas-



*Ice fishing is the stuff of which childhood memories are made. A young man gets some pointers from a 4-H volunteer on the fine art of catching fish from an icy lake.*

ing in Natural Resources 4-H projects. Nearly three-quarters expect the same trend in volunteer leader participation.

The agents' participation predictions are heartening, but what is the overall priority they place on Natural Resources compared to the many other 4-H programs offered by Cooperative Extension in New York? We asked agents to rank agricultural program areas according to the priority they believe these should have for program support through the 1980's. Natural Resources was ranked second only to energy conservation programs.

### **Problems and Potentials**

The motto "more with less" echoes our situation regarding Natural Resources 4-H programming. Limited budget appropriations combined with double-digit inflation make it difficult to maintain current programming efforts. Expanding programs by using existing Extension funds is nearly impossible, regardless of the documented demand for particular programs. Given this condition, it would be easy to view the mushrooming demand for Natural Resources 4-H programs as a problem rather than as an opportunity to reach a larger audience with our youth development mission.

But, such a pessimistic view is unwarranted. While it's clear that the traditional approach of taking our needs to our administrators will have to be abandoned, we've found that there are many opportunities to expand. The potential for acquiring outside support from natural resource management agencies and private organizations is vast.

In New York we have worked with the U.S. Fish and Wildlife Service (USFWS) and the New York State Department of Environmental Conservation (NYSDEC) in developing Extension program materials on a contractual basis. We have received grants from private foundations to maintain and accelerate ongoing programs. We also have received support from a whole host of commercial firms, often in the form of technical expertise or equipment for specific programs.

Cooperative youth program efforts have been undertaken with NYSDEC and New York Sea Grant. These agencies are committed to developing environmental awareness in youth, but like Extension they have budget limitations. By combining efforts we increase our efficiency and accomplish mutual educational objectives which would be impossible individually.

### **Cooperative Efforts**

One example of how we've meshed Extension programming interests with those of other organizations is the development of a regional education program on predation and northeastern birds of prey for the USFWS. Under contract with USFWS, we prepared two major Extension bulletins (one a 4-H Activity Leaders' Guide) and two slide/tape sets. Several private organizations assisted by providing slides and reviewing manuscripts. The NYSDEC also cooperated by providing color paintings of hawks and owls.

Another recent effort was a joint venture between Extension, NYSDEC, and New York Sea Grant. As part of our 4-H fisheries program, we prepared a "Guide to the Freshwater Fishes of New York." Early in the conceptualization of this 144-page field guide and identification key, we envisioned its potential

use by NYSDEC and Sea Grant. These organizations enthusiastically cooperated in the project by providing information, reviewing manuscripts, and underwriting initial publication costs. Additionally, a private foundation contributed funds for illustrations in the guide. Now, 1 year after its release, over 6,500 people are using the guide and learning more about our freshwater fishery resources.

A private foundation also has supported our wildlife program through a separate small grant. With this money we are producing a series of circulars about "New York's Wildlife Resources" and using these as a basic information resource for the wildlife management portion of our 4-H Shooting Sports Program. The *New York Sportsman* magazine has cooperated by running summaries of these under a special column, "Notes on New York's Wildlife," giving the effort even greater impact statewide. The National 4-H Council has also helped in our wildlife program by supporting an effort to compile, index, and annotate current wildlife Extension/public information literature.

### **Outlook**

4-H programs in any subject area have potential for making significant progress toward meeting Extension's 4-H youth development goals for the 1980's. We see our greatest potential in youths' and leaders' widespread interest in Natural Resources programs. Perhaps our experience in responding to this growing audience can assist others as we all strive to meet documented educational needs with quality programming. ■

# A Tale of Two States

Penny M. Frey  
Assistant Editor  
Vermont Agricultural Experiment Station

An article in the Spring 1979 issue of *Extension Review* sparked the beginning of a two-state, multi-media nutrition education project between Vermont and Nevada.

Barbara Gunn, Nevada state Extension specialist for health education, read in *Extension Review* that nutrition materials from a Vermont project were available. She then called Karin Kristiansson, the Vermont Extension multi-media specialist. Gunn was writing a grant proposal and wanted to use the materials as part of a nutrition education project to reach food stamp families.

Kristiansson, meanwhile, had teamed up with Aline Coffey, Vermont Extension specialist in foods and nutrition, to write a proposal for a project to develop and test new nutrition materials geared toward low-income consumers. Using a multi-media approach with television, newsletters, direct teaching, and telephone aides, their goal was to reach large numbers of food stamp recipients and find out which teaching methods were most effective and least expensive.

Gunn, Kristiansson, and Coffey decided to pool their ideas, resources, and expertise to try a daring new approach to the project—a cooperative venture between two vastly different states almost a continent apart. If the project were funded by SEA-Extension, it would give the codirectors a chance to find out if urban (Las Vegas, Nevada) low-income consumers differ from rural (Vermont) consumers when it comes to understanding and using nutrition information. It would be like conducting two projects without the double cost.

The people at SEA-Extension agreed to fund the project, called "Good Food—Good Times." Work began immediately with Kristiansson and Coffey in Vermont developing newsletters and television programs for both states. Evelyn Johnson, SEA-Extension, served as project liaison.

## The Project

An important feature of the project, says Kristiansson, was that all materials and letters sent to participants were personalized. Because Aline Coffey was a familiar face and name to some 100,000 Vermont viewers of the popular daily Extension television show, "Across the Fence," her name appeared on all direct mail information.

In Las Vegas, the 15-minute television segments produced in Vermont were expanded to 30-minute shows by Jack Wise, Extension communications specialist, who added local resource persons to regionalize and personalize the programs. The codirectors say this helped make the participants in both states feel good about being part of the project.

Who were the participants? They were several thousand food stamp families living in either urban Las Vegas or rural areas of Vermont. Their circumstances were varied. Some were single mothers with young children, some elderly couples. Some lived in trailer parks, others in housing developments, and still others in mountain cabins. What they shared was their need for information about feeding their families nutritious meals on a budget.

Working with the state food stamp office in Vermont, Kristiansson sent out 17,000 program announcements to food stamp families, inviting them to join the Good Food-Good Times program. In Nevada Paige Keeter, project manager, sent out 7,000 invitations through food stamp offices,

working closely with Emma Yancy, Clark County EFNEP coordinator, who was instrumental in enrolling the Nevada participants.

Enrollment cards immediately started pouring in from more than 6,000 people in the two states. Pre-tests were sent out, and in Vermont nearly 3,000 people took the pre-tests and formally enrolled in the project. In Nevada, nearly 700 enrolled.

The participants were divided randomly into three educational system groups and a control group. The systems were set up to check the effectiveness and costs of various multi-media combinations for teaching nutrition information. Once each week, participants in SYSTEM 1 watched television programs, received weekly newsletters, and talked to a nutrition aide on the telephone once a week to discuss their questions or successes.

In SYSTEM 2, participants were exposed to the same television programs and weekly newsletters, but had no contact with a nutrition aide.

Participants in SYSTEM 3, were taught the same information directly by a nutrition aide, either in the participant's home or in a small group setting in the community. This last system is the traditional EFNEP method of teaching.

However, the project was geared more toward multi-media approaches to information than it was geared to just nutrition information. The co-directors were looking for more efficient and less costly ways to get needed information to consumers. They also wanted to find out how many participants actually changed their eating and

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food preparation and shopping behavior as a result of the program. Did the participants feed their families less sugar, more protein, and generally more nourishing meals?

The material covered in the newsletters was geared toward low-income food budgets. It included lessons on how food affects our lives, how to save money when shopping and cooking, how to cut calories, and how to get the most protein, vitamins, and minerals in the diet for the least money.

## Results

The results of the project, after much evaluation, confirmed a few of the project directors' beliefs. A comprehensive evaluation system, designed by Robert Honnold, associate director of the Extension Service in Vermont, made extensive use of computer technology.

Working with Charles Bigelow, coordinator of computer services, and John Aleong, Vermont Agricultural Experiment Station statistician, Kristiansson was able to evaluate and assess many variables of the project, such as where the participants lived (urban or rural), their ages and education levels, and the effectiveness of the various teaching approaches.

The project results showed that one-to-one instruction or small group instruction conducted by teaching aides—the traditional EFNEP way of reaching food stamp recipients—is indeed a very effective way of teaching nutrition principles. Unfortunately, because of travel costs, aide time spent traveling, and the relatively small client load per aide, it's also the most expensive method of teaching.

Every system in the project showed positive results in learning and changes in participants' nutrition behavior. The winner of the cost-effectiveness race was the combination of the weekly television shows and the direct mail newsletters—SYSTEM 2. SYSTEM 2 included no personal contact by aides, thus its costs per participant family were low.

SYSTEM 1, which included television, newsletters, and telephone aide contact, also had significant learning, but the costs for this system were higher than for SYSTEM 2 (although not as high as for the direct teaching—SYSTEM 3).

Kristiansson points out, however, that every information program would be different and should be tailored for the needs of the consumers. If, for instance, personal contact is necessary, telephone aides can reach consumers for lower cost and more efficiently than direct teaching aides who visit the home. In the Good Food-Good Times project, full-time telephone aides were able to contact between 135 and 180 participants on a regular basis, as compared to between 35 and 55 participants per direct teaching aide.

The Vermont-Nevada project co-directors are proud of the excellent data for evaluation they have collected that will be helpful to people developing similar projects. But they are also proud of the human results of their two-state venture.

One of the results of the project was that the Good Food-Good Times materials opened the door to Extension for many food stamp users. When asked at the end of the project whether they had received nutrition information from other sources before the project began, only a little more than one third of all participants in both states said they had. Of those, less than 9 percent had received it from Extension. So the doors were opened for this often difficult-to-reach audience.

An astounding 95 percent of the participants said they would like to continue in the project if it were extended. In fact, 2,600 enrolled in a continuing EFNEP nutrition education project in Vermont after Good Food-Good Times ended. In addition to the immediate help the food stamps were providing for their families, the participants were grateful for the nutrition information, which made them better consumers and better cooks in the long run. They said these were valuable lifetime skills.

Some participants had never been taught to cook certain meats or vegetables and had no confidence in their abilities to feed their families on the food stamp budget. One husband was delighted because his wife had actually cooked a turkey—her first one. He told the nutrition aide, ". . . this program has helped her out a lot . . . she did a good job . . . I think the program is helping a lot of people who don't know about nutrition with nobody else to teach them."

Another participant learned about consumerism for her large family. She reported, "I was always buying whatever was on the shelf without checking what was put into the stuff . . . I learned different things about the vitamins and protein that to me were just automatically there."

The motto of the program, according to Kristiansson and Coffey, was "Plan better, shop better, eat better, live better," and the far-reaching effects of this attitude extended beyond the 3,000 participants who were part of it. Depending on the system they were in, between 73 and 92 percent of the participants said they had discussed the Good Food-Good Times nutrition information with at least one other relative, neighbor, or friend.

Gunn reports that the two-state cooperation was good right from the beginning. "Nevada has a small, but hardworking, energetic, and creative staff," she said. "How nice it was to have access to the production and evaluation capabilities of Vermont."

Vermont co-director Aline Coffey says, "The Good Food-Good Times project has been an exciting and positive experience. It has provided an ideal opportunity for the Food Stamp Program and Cooperative Extension to work together toward a common goal."

Perhaps the project was best summed up by a participant who said the Good Food-Good Times program had given her a feeling of hope. "Because of your concern," she told an aide, "your phone calls, I'm doing a much better job of feeding my family and doing it as a labor of love now."

(Editor's Note: This article is a reprint of Vermont Agricultural Experiment Station Journal Article 459. The 56-page project report, *Cost Effectiveness of Three Nutrition Education Delivery Systems*, is available from Karin Kristiansson, 205 Morrill Hall, University of Vermont, Burlington, Vermont 05405.) ■



# A Beginning for Young Farm Families

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University of Missouri*



Politicians, educators, economists, ecologists, sociologists, and agriculturalists are all busy describing the problem of declining numbers of family farms. But few appear to have solutions.

Many people agree tax reform is needed to discourage business, professional people, and corporations from competing with farmers and would-be farmers for possession of land. However, changing tax laws is often a very lengthy process.

In the meantime, what programs are available to help keep farmland in the hands of farmers? Minnesota and North Dakota have loan assistance

programs to help young couples acquire farms. The Farmers Home Administration (FmHA) and Federal Land Bank have similar programs.

## Motivation Through Education

The University of Missouri (UM) Extension Service is taking an educational approach to help beginners meet the technological and economical requirements for success. This knowledge, in turn, is proving helpful in getting young farmers loans from conventional sources. Regardless of the developments in tax reforms and loan markets, the couples will need the technical knowledge to succeed.

"The only way we can halt the trend (declining family farm numbers) is to

*Karen and Fred Meyers, Jr., of Maywood, are typical of the many couples participating in the Extension Family Farm Development Program. This site, their third farm, has 36 more acres suitable for farming as well as more quarter-mile rows now that bulldozing work is complete. Program help came from specialists in interior design, horticulture, and livestock and agricultural engineering.*

somehow get more young farm couples started in farming," says Tom Brown, an Ozarkian who is UM interim dean for Agricultural Extension.

In the Missouri Family Farm Development Program, the County Extension Council appoints a Family Farm Advisory Committee that helps



*Left: Judy Weston "supervises" 90 sows, with 200 pigs in farrowing and 240 more in the nursery. They wean at 4 weeks and market at 40 or 50 pounds.*



*In their second career, Floyd and Judy Weston of LaMonte, worked closely with Dale Hagerman, (right), family farm development specialist, to "cost out" a new farrowing house. Hagerman's figures not only proved to the Westons that the confinement units would pay, but he helped them prove it to the lender.*

an area Extension family farm specialist locate young couples in their county who can benefit from the program.

Missouri's 114 counties are divided into 21 areas with Extension specialists assigned to each. Eight of the areas have a family farm specialist, and plans call for other areas to have them soon.

The types of assistance given by advisory committees vary from county to county. One committee is arranging a series of workshops with sponsored lunches and taking the responsibility of getting young couples to the classes. The committees

often get help from bankers, PCAs, FmHA, and others in locating prospective student couples and sponsoring meetings for clients.

Family farm specialists get lots of help from the other agriculture, home economics, and youth specialists. The other specialists use their expertise to help teach short course subjects and assist the young couples with problems. The family farm specialist is the contact person who puts other specialists in touch with couples who need their help.

#### **Educating Educators.**

A train-the-trainer approach was followed in preparing the Missouri Extension staff for the Family Farm Development Program.

First a 2-year pilot program was conducted in five areas, starting in 1977. A state Family Farm Committee was formed with an Extension specialist representing each department in the Colleges of Agriculture and Home Economics, Extension Information and 4-H programs, and two specialists representing the field staff.

The state committee, guided by the pilot project, prepared a workbook that could be used to compare wide ranges of farming alternatives. They also prepared a manual outlining steps to take in a county to organize a Family Farm Program and do the teaching.

The preliminary teaching material was tested on the state specialists at a 2-day training session in 1979, held away from the campus in a rural area. Data and maps on a case study farm were sent to specialists in advance of the training meeting.

The first morning was devoted to touring the case study farm, meeting the farm couple, and becoming acquainted with their goals and operation. The rest of the seminar was held at a local motel.

After learning more about the family's financial situation, the specialists divided into teams. Each team was given a different problem.

For example, Team 1 was instructed to develop plans and budgets for a beef cattle system with a complementary poultry enterprise. Other teams were to feature cost and profit potentials with hogs, dairy, and grain as major enterprises.

Variations in plans for other things such as remodeling the old house or building a new one, and the wife keeping her job or contributing full time to the farm labor force, were included for comparison. All teams had to include family living and business cash flow accounts.



Teams worked on their plans through the afternoon and evening, then presented their results to the group the following morning. A specialist in each enterprise had to report on the farm's potentials in his or her subject matter area. The farm couples were guests at a noon luncheon where selected specialists presented them with a summary of five alternative plans and their profit potentials. The same agenda was used the following year in training field staff at seven locations over the state.

New workbooks were prepared for staff to use in short courses and visits with farm couples. Experience with their practice session helped the state specialists design the forms, tables, and other teaching materials.

Information specialists and editors, who also attended the state workshop, helped to design the workbook and a Family Farm Development Handbook. The handbook was filled with reference information from each department to help family farm specialists answer questions and solve problems they were likely to encounter as they worked with young couples. Cash flow analysis, computer records,

*Emmett McCord, (left), family farm development specialist, talks with Gail Marble and son David as they walk toward Marble's new dairy barn built last fall. The Marbles raise goats on their 20 acres near Purdy. An accountant working with farm loans, Marble learned recordkeeping and tax pointers from McCord.*



*Left: Emmett McCord and Jerry Carpenter, (right) area agriculture engineer, discuss prospects for McCord's farming operation as they inspect two of his goats.*

long-and-short-term planning, and computer use are emphasized in the program.

A recent addition to the tools for field staff developed by the state is a teaching packet for "Developing Farm Businesses for the 80s." It provides materials for teaching couples the long-range planning steps in a short course setting and helps cut time needed for individual assistance, although a great deal of individual work with couples is still involved. For that reason, the goal is to graduate couples to regular Extension programs in roughly 2 years and move on to new couples.

### New Generation Faces New Challenges

Tom Brown says, "The farmers that Extension helped get started 30 years ago—the ones we grew up with—are ready to retire or slow down, and not all of them have children who will take over. So we need to get a new generation of young couples started on these farms to stabilize our family farm agriculture."

"It isn't as easy for young couples to start today as it was when we helped a lot of them start small and grow into businesses in the 1940s and 50s," he adds. "They have to jump in at a big enough size to be competitive. This means lots of debt. Stress on such families is tremendous—a normal commercial farm has half a million dollars tied up in land, buildings, and equipment. Beginners are lucky to start with \$50,000 and they have to find a way to run that up to the \$500,000 figure in a few years."

Gail Imig, new associate dean for home economics Extension, says that the trend toward specialization in Extension work to keep abreast of rapid technological change had tended to separate us. This family farm approach has been bringing us back together. We all focus on families' needs, help where we can, and call on our colleagues when their specialty is the one required.

Young farmers, Gail adds, are building a business and a family at the same time. "Every decision to spend time or money affects every other phase of the business and every family member. It's time we pooled our expertise and considered effects of individual decisions on overall farm and family elements." ■

# State Leader on the Move— Naurine McCormick

Betty Fleming  
Communications and Family  
Education Program Leader  
Washington, D.C.



*Top:* Naurine McCormick, assistant director for home economics with the Cooperative Extension Service at Ohio State University, confers with R.M. Kottman, dean of the college of agriculture and Extension director at OSU. *Bottom:* McCormick testifies on behalf of home economics at a recent Congressional hearing on the new farm bill.

With 23 years of Extension work under her belt and a total of 32 years in the home economics profession, you might expect Naurine McCormick to slow down or display signs of the fashionable "burnout" condition. But she "wakes up excited every day," she says.

Naurine McCormick's official title is Assistant Director for Home Economics with the Cooperative Extension Service of Ohio State University. As such, she is responsible for statewide home economics programming; the interviewing and the motivation of a state, area, and county home economics staff; liaison with the OSU School of Home Economics, and more.



But, over the years, she has become known not only for the excellence of her work at home, but for her effectiveness and leadership in working with other states on a regional and national basis. She has held top jobs in many key home economics-related organizations in her state and around the Nation.

But McCormick is not overly impressed with this leadership role. She feels her priority task is "getting county people ready to teach." It bothers her that her busy schedule doesn't permit her to see more actual county teaching situations so she can personally judge whether the help she and state specialists give is on target. But, she'll also tell you proudly that she still tries to average two county visits a week.

*McCormick takes time to offer some hints on infant nutrition to a young mother.*

"If a vacancy is coming up, I go to the area or county office to get updated on programs," McCormick says. "I talk to supervisors, look at candidates' credentials, participate in interviews."



*McCormick discusses multi-media techniques with Gary Nugent (left), head of information and applied communications for Ohio CES and Dale McClaren, video editor. Opposite Page: McCormick discusses food and nutrition at a planning session with aides.*

Roy M. Kottman, dean of the College of Agriculture and Home Economics and director of Extension, admires McCormick's ability to mix and work well with people at all levels, her drive to do things a better way, her skill in communicating the Extension story, and the way she "champions" the cause for home economics. "She always looks for the reason behind the reason," he says.

How much of her time does it take to keep the over 100 state, area, and county home economics positions filled? She laughs and says, "I remember one time in 1978 when all the positions were filled. It lasted overnight."

"The most important thing I think we can do," McCormick says, "is to hire good people and, then, turn them loose within the structure, making sure they have respect for the system."

Every county home economist must write an annual plan of work. OSU's ten area supervisors write brief summaries of those reports but McCormick makes sure she reads the original reports, too. "I write a half page of notes on each one which I offer to share with all supervisors. They usually take me up on the offer. This means a face-to-face conference." Close contact with county needs and concerns enables McCormick to direct department chairpersons and state specialists' attention to key problems.

McCormick also scans the many county newsletters that cross her desk. She shares items with state specialists. Frequently, she'll write a note to a county home economist, commenting on a particular

program. A copy of that note always goes to area supervisors. In addition, McCormick and the state staff do 10 newsletters each year for county staff. These include up-to-date subject matter information and a cover letter from McCormick.

### Looking Back

McCormick's rise to the top of her profession wasn't easy, especially since she combined roles in the days when it wasn't fashionable. Her husband's work took the family to different locations. She moved, of course, but she saw to it that there was a good home economics job waiting when she got there.

One relocation was a move to Mille Lacs County, Minnesota. This was McCormick's first contact with Indian families and their needs. "When I took my son in a playpen to Indian food workshops, I was more accepted," she says, fondly remembering those days.

After 2 years in Mille Lacs County, McCormick returned to Minneapolis where she taught nutrition at the University of Minnesota.

In 1960, the family moved again—to North Dakota—where McCormick became chairman of Food and Nutrition, College of Home Economics, North Dakota State University. She was in that job one year when the assistant director of Family Living for Extension retired and she applied and was named to that position.

During her 5 years in North Dakota, McCormick continued working with Indian families. She recalls going to reservations and working out contracts with the Bureau of Indian Affairs and other organizations.

In 1965, McCormick moved to Ohio where she became the assistant director for Extension home economics at the Ohio State University.



### How Do Others View Her?

Lena Bailey, associate director with the School of Home Economics at OSU says Naurine McCormick is supportive of academic programs in many ways. "She serves on our Executive Committee and reports on Extension work in Ohio and other states. She has a grassroots feeling for programs and audiences and often brings us research ideas. She is interested in students and is always on the lookout for good Extension talent. She stays on top of the political scene. This has impact on Extension, OSU, and the profession of home economics," Bailey says.

Margi Griffiths, an area agent and former county home economist, works closely with McCormick. "I've come to her with a number of ideas and she's always been receptive, ready to go after the funds and resources to do the job," says Margi. "We piloted an assertiveness leadership project for 18,000 homemakers. It took travel, design help, and a lot of agents' time—all costing money. Some administrative people were concerned about it at first. But Naurine backed us all the way. Eventually, every area participated and the project was successful."

"We just don't have a handle on this yet" is a phrase that McCormick often uses, according to Kathy Cox, 4-H assistant state leader. "She just doesn't accept defeat."

George Gist, Extension associate director for OSU says McCormick's efforts bring credit to the home economics program and to OSU. "She's a major factor in the fact we've got a good home economics program," he says.

### Thoughts On The Future

Where are the new Extension state leaders going to come from for the 80's, the 90's, and beyond? McCormick is concerned about this. "The movement upward in this profession is hit or miss. Not all women survive life at the top."

McCormick feels positive about the future of Extension home economics but she sees problems, too. "As travel budgets get cut, state leaders can't get to meetings they need to attend. Some state leaders are looking to the deans of home economics for support instead of Extension directors. Survival in the system (getting promoted) is the chief pursuit for some. This means there's a wider gap between state staff and field staff."

Down the road, McCormick sees a day when state leaders in the regions will elect representatives to the ECOP-Home Economics Subcommittee, the national leadership group. Now, Extension directors appoint members.

McCormick proudly says she hasn't missed an AHEA (American Home Economics Association) meeting since 1964. Not only does she take pride in her role as associate director, School of Home Economics, OSU, she takes a personal interest in enrollment of home economics students. "Their parents, especially the more rural folks, expect us to look

after their young people," she says. "It's good PR for Extension, for OSU, and for home economics."

It concerns McCormick that many home economic students, even today, feel "inferior" to other students. "Ag Economics students can go into veterinary school. Why shouldn't a home economics student be able to go into medicine or law?" McCormick feels accreditation attempts for home economics haven't worked well. "They're afraid of hurting feelings," she says.

"I'm concerned about some of our home economics teachers at the high school level," McCormick says. "Some are still making pine cone wreaths in class. That's a bad image for all of us in home economics." As a result, she encourages her staff to open meetings and training to all home economics educators.

What can Extension home economics educators do to build for a better tomorrow? McCormick suggests three things: Encourage state specialists to relate better to county problems and needs; Train program assistants to do the jobs that professionals can't do; Recruit people-oriented state leaders.

### Helping Others Up The Career Ladder

What does McCormick advise county home economists to do if they aspire to be state leaders? In her own office, McCormick is grooming someone to move up an administrative ladder. Linda Roberts, a former county home economist, has been a program coordinator for McCormick for 3 years. "I function

as an assistant to her," says Roberts. "The demands on Naurine were so heavy, someone was needed to do legwork, liaison, and carry out projects for Extension homemakers."

McCormick knows how difficult the road up the career ladder is for women. "When an Ohio county home economist becomes county chairman, I let her know I'm on her team. I recognize she'll only be able to do half the home economics programs she did before. But, I also realize that she'll be more influential. That does something for home economics."

McCormick faces limitations in getting enough time to keep up with new trends in technology, research, and subject matter. "I tell my staff to keep me informed and they respond."

### Looking Over Her Shoulder

As McCormick looks back at a long and action-packed career, she says her greatest satisfaction comes from seeing and OSU program "lead the pack." When an Ohio Extension home economist reports on a successful, innovative program at a state, regional, or national meeting, McCormick says everyone shares the satisfaction. "Let's face it," she says, "we all like competition. It keeps the motor running."

Frustrations come when McCormick sees field staff having trouble doing their jobs. "I feel we picked the best people. The crucial question is, why are they having trouble? I try to analyze the situation, do some problem-solving."

Another frustration is the amount of mass media that field staff are using in Ohio's heavily urbanized population, and the difficulty of being accountable for that activity. People would be staggered by the influence of our program if we only had mass media data in hand."

### Advice For New State Leaders

"My strong suit is in bringing out the best in people. I also try to be an idea person and help others to share that idea," says McCormick.

She feels fortunate that she's an active participant in the decision-making process at Ohio State level. "I go to administrative cabinet meetings every week when assistant directors meet with the associate director.

How much attention should state leaders pay to budget? McCormick says, "If you're worrying too much about pennies, you can't do a programming job. State leaders certainly shouldn't try to keep the books. If they need more money, they ought to go to their administrators and make a case for it."

### Would You Do It All Again?

Does McCormick have any career regrets? She finds it difficult to identify any. She says, "If I were starting over again, I'd go after a combination home economics-law degree—you know, to help homemakers determine their economic value. But I'd still work for Extension." ■

# Local Decisionmaking— A County Gets Involved

**Tom Lollis**  
Area Extension Editor  
Savannah Valley District, South Carolina

The people of Lexington County, S.C., have taken a lion's share of the decisionmaking process into their own hands—with the help of the Extension Service Community Development Program.

Their achievements include building a hospital; creating a countywide rural fire protection system, a countywide ambulance service, an effective solid waste control system; and building an atmosphere that helps attract new industry.

Raymond Boozer, county Extension leader, says, "Over the nearly 26 years that I've been in Lexington Extension's office, the CD program has been involved in many important projects." He adds that the core of the CD program is composed of a committee of 70 men and women—doctors, farmers, lawyers, bankers, politicians, homemakers and representatives of public service agencies and institutions.

"A lot of people have been involved in these projects," says Boozer,—"the chamber of commerce and local politicians, for instance. I'm concerned about the organization and support. I do the legwork for the committee, and when the people get together once a month they discuss what they need to be working on. Extension acts as a catalyst."

## Projects Get Results

The original study committee for the county hospital included two members of the CD committee. Boozer served three terms as a member of the hospital board. Since the hospital was built 11 years ago, its capacity has doubled from the original 125 private rooms, thus eliminating the need to depend on a neighboring county for most medical services.

Rural fire protection is one project for which the CD committee can take direct credit, says Boozer. In 1965, he and the presidents of the 14 community clubs in Lexington County were named to a committee to study the prospect for rural fire protection. Today, 17 fire departments provide protection to about 95 percent of the county's 143,000 residents. All but two municipal stations are volunteer firefighting units.

"Most property owners save more than what the system costs them in reduced fire insurance premiums," he says. The backbone of the volunteer fire departments are the community clubs which provide manpower and financial support for the acquisition and upkeep of equipment. The county provides buildings and one truck for each department and pays for building upkeep.

## Community Club Activities

Boozer helped organize all of the local community clubs. They affect about 2,000 families in Lexington County and that is where the CD program begins—at the grassroots.

Club members are very active in a number of areas. "They are working with politicians," Boozer says, "to try to get the tax burden shifted from property to some other source of revenue for the local governments, such as sales tax to help the farmer. They're working for countywide water and sewer systems and take part in Extension beautification efforts which have won the county the Governor's Hall of Fame Award, the highest state award for beautification and community improvement. They persuaded the county to set up a sign department, and three-fourths of the roads in the county now have names."

Club activities are designed also to promote family togetherness and may be both educational and entertaining. One club sponsored a talent show for members, built a float for the Christmas parade, picked up trash in the community, sponsored a beauty contest, and raised money for the American Cancer Society and the Lexington County Education Foundation. Each club maintains its own building, which serves as the community's focal point.

One new neighbor's arrival attests to the county's attractive image as a good place for new industry. "Michelin is our plum for 1980," says Boozer. The French tire company is building a \$100 million plant near the county seat. ■

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